

**Notice of Allowability**

Application No.

10/802,862

Examiner

Jerry Martin Blevins

Applicant(s)

CHUNG ET AL.

Art Unit

2883

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to interview conducted 02/15/2006.
2. ☒ The allowed claim(s) is/are 1-9.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☒ All b) ☐ Some\* c) ☐ None of the:
    1. ☒ Certified copies of the priority documents have been received.
    2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
  5. ☐ CORRECTED DRAWINGS ( as "replacement sheets") must be submitted.
    - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review ( PTO-948) attached
      - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
    - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date \_\_\_\_\_
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date \_\_\_\_\_
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other \_\_\_\_\_

  
**Brian Healy**  
**Primary Examiner**

## **DETAILED ACTION**

### **EXAMINER'S AMENDMENT**

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Mr. Paul Tsou on 02/16/2006.

The application has been amended as follows:

In the claims section, following claim 8, insert new claim 9, with the following text:

-- 9. The method of claim 1, further comprising:

dividing each bit of the optical signal into a fast polarization axis component and a slow polarization axis component;

transmitting the slow polarization axis component in the slow polarization axis and the fast polarization axis component in the fast polarization axis of the optical path, the slow polarization axis component being transmitted earlier in time before the fast polarization axis component. --

***Allowable Subject Matter***

Claims 1-9 are allowed.

The following is an examiner's statement of reasons for allowance:

Regarding independent claim 1, the prior art, as exemplified by US Patent to Way et al., number 6,583,903, teaches a method for reducing system deterioration caused by polarization effects when an optical signal is transmitted to a destination using an optical transmission system having an optical path comprised of fast and slow polarization axes (column 1, lines 48-58 and column 7, line 66 – column 8, line 14). However, Way, either alone or in combination with the prior art, fails to disclose or render obvious the steps of controlling a transmission end to divide the optical signal into two polarization components orthogonal to each other within one bit before transmitting the optical signal and using a predetermined effect indicative of a pulse width reduction caused by polarization mode dispersion. See Way, column 8, lines 15-47.

Claims 2-6 and 9 are allowed due to their dependence from allowed base claim 1.

Regarding claim 7, Way teaches an apparatus for reducing system deterioration caused by polarization effects (column 1, lines 48-58 and column 7, line 66 – column 8, line 14), comprising: a transmission end including: a light source (column 1, lines 13-20), and a transmission end polarization controller for controlling the polarization direction of a polarization modulated signal (column 2, line 33 – column 3, line 47). Way does not teach the further limitations. Liang teaches a first intensity modulator driven

by a data signal, for modulating an output signal of the light source into an NRZ signal and a second intensity modulator driven by a clock frequency signal synchronized with the data signal, for modulating the NRZ signal received from the first intensity modulator into an RZ signal. However, Way, either alone or in combination with Liang, does not disclose or render obvious a polarization modulator driven by a signal having a frequency equal to half a frequency of the clock frequency signal, for modulating the RZ signal received from the second intensity modulator into another signal so that individual nearby bits have polarization components orthogonal to each other and a PMF (Polarization Maintaining Fiber) for controlling a polarization direction of the polarization-modulated signal to be equal to an angle of 45 degrees on the basis of its own polarization axis, and generating a difference between group velocities of two orthogonal polarization components.

Regarding claim 8, Way teaches an apparatus for reducing system deterioration caused by polarization effects (column 1, lines 48-58 and column 7, line 66 – column 8, line 14), comprising: a transmission end including: a light source (column 1, lines 13-20), and a transmission end polarization controller for controlling the polarization direction of a polarization modulated signal (column 2, line 33 – column 3, line 47). Way does not teach the further limitations. Liang teaches a first intensity modulator driven by a data signal, for modulating an output signal of the light source into an NRZ signal and a second intensity modulator driven by a clock frequency signal synchronized with the data signal, for modulating the NRZ signal received from the first intensity modulator into an RZ signal. However, Way, either alone or in combination with Liang, does not

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disclose or render obvious a PMF (Polarization Maintaining Fiber) for controlling a polarization direction of the polarization-modulated signal to be equal to an angle of 45 degrees on the basis of its own polarization axis, and generating a difference between group velocities of two orthogonal polarization components.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jerry Martin Blevins whose telephone number is 571-272-8581. The examiner can normally be reached on Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank G. Font can be reached on 571-272-2415. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JMB

A handwritten signature in black ink, appearing to read "Brian Healy".

**Brian Healy**  
**Primary Examiner**